

AMENDMENTS TO THE CLAIMS

44. (Currently Amended) An apparatus, comprising:

a network interface;

a peripheral interface; and

a processor coupled to the network interface and the peripheral interface,
~~the processor being associated with a first simulation of a virtual environment including a first virtual object,~~

~~the processor configured to receive from the network interface a web page comprising embedded force feedback information a signal associated with a second virtual object within the virtual environment,~~

~~the second virtual object generated by a remote processor,~~

~~the processor configured to generate a virtual environment based at least in part on the web page,~~

~~the processor configured to execute a force feedback driver software, the force feedback software configured to interpret the embedded force feedback information, and~~

~~the processor configured to send to the peripheral interface a force feedback signal configured to cause associated with a force haptic feedback effect, the force feedback signal based at least in part on the interpreted force feedback information on a virtual interaction between the first virtual object and the second virtual object.~~

45. (Currently Amended) The apparatus of claim 44, wherein:

the processor is configured to receive from the peripheral interface a position

signal associated with a position of a manipulandum, the processor is configured to send to the network interface a signal associated with a the first virtual object in the virtual environment based at least in part on the position of the manipulandum.

46. (Currently Amended) The apparatus of claim 44, the processor being a first processor, wherein the force feedback signal sent to the peripheral interface associated with the haptic feedback is configured to compensate within the first simulation for a delay between signals associated with the first virtual object and the signal associated with the second virtual object.

47. (Currently Amended) The apparatus of claim 44, the processor being a first processor, wherein:

the virtual environment is defined by the first processor and a second processor in communication with the first processor over a network, the first processor implementing a defining the first simulation of the virtual environment, the second processor implementing defining a second simulation of the virtual environment, the first simulation substantially corresponding to the second simulation.

48. (Currently Amended) The apparatus of claim 44, the processor being a first processor, the signal associated with the haptic feedback being a first signal, the apparatus further comprising:

a manipulandum;

an actuator coupled to the manipulandum; and

a second processor coupled to the actuator and the peripheral interface, the second

processor configured to receive the force feedback first signal from the peripheral interface, the second processor configured to send a second signal to the actuator based at least in part on the force feedback first signal, the actuator configured to generate the provide haptic force feedback effect based at least in part on the second signal.

49. (Currently Amended) The apparatus of claim 44, the processor being a first processor, the apparatus further comprising:

a manipulandum having at least one degree of freedom;

an actuator coupled to the manipulandum;

a sensor configured to detect a position of the manipulandum in the at least one degree of freedom; and

a second processor coupled to the sensor and the peripheral interface, the second processor configured to send a position signal to the peripheral interface based at least in part on the position of the manipulandum,

the first processor configured to send to the network interface a signal associated with a the first virtual object based at least in part on the position signal.

50. (Currently Amended) The apparatus of claim 44, wherein:

the network interface, the peripheral interface and the processor are included within a video game console system configured to generate, the first simulation and the second simulation being associated with a virtual game environment; and

the network interface comprises being at least one of an Ethernet connection or and a modem connection.

51. (Currently Amended) The apparatus of claim 44, wherein: the force feedback signal comprises associated with the haptic feedback includes a high-level command, the high-level command configured to be interpreted by a local processor to implement a local force routine with a manipulandum.

52. (Currently Amended) The apparatus of claim 44, wherein:
the force feedback signal comprises associated with the haptic feedback includes a positional offset, the positional offset being associated with a difference between a the first virtual object and a the second virtual object within the virtual environment generated by the processor the first simulation.

53. (Currently Amended) An apparatus, comprising:
a manipulandum having at least one degree of freedom;
an actuator coupled to the manipulandum;
a sensor configured to detect a position of the manipulandum in the at least one degree of freedom, the position of the manipulandum being associated with a first virtual object within a virtual environment; and
a local processor coupled to the actuator and the sensor,
the local processor configured to receive from a host processor a force feedback signal generated by a force feedback driver software executing on the host processor, the force feedback signal based at least in part on a web page received from a remote processor, associated with a virtual interaction between the first virtual object and a second virtual object within the virtual environment, the second virtual object generated

~~by a remote processor,~~

the local processor configured to send an actuator a signal to the actuator based at least in part on the force feedback signal from the host processor, ~~the virtual environment being defined by the host processor and the remote processor in communication with the host processor over a network.~~

54. (Currently Amended) The apparatus of claim 53, wherein:

the local processor is configured to receive from the sensor a position signal associated with a position of a manipulandum, the position of the manipulandum being associated with a position of the first virtual object within the virtual environment.

55. (Currently Amended) The apparatus of claim 53, wherein:

the host processor is associated with a first simulation of the virtual environment; the remote processor is associated with a second simulation of the virtual environment; and

~~the actuator signal sent to the actuator is configured to compensate within the first simulation for a delay between the host processor and the remote processor signals associated with the first virtual object and the signal associated with the second virtual object.~~

56. (Currently Amended) The apparatus of claim 53, wherein:

~~the virtual environment is defined by the host processor and the remote processor, the first processor implements a defining the first simulation of the virtual environment,~~

the second processor implements defining a second simulation of the virtual environment, the first simulation substantially corresponding to the second simulation.

57. (Currently Amended) The apparatus of claim 53, wherein:

the force feedback signal received from the host processor includes a high-level command, the local processor configured to implement a local force routine based on the high-level command, the actuator signal sent to the actuator being based at least in part on the local force routine.

58. (Currently Amended) The apparatus of claim 53, wherein:

the host processor is associated with a first simulation of the virtual environment; the remote processor is associated with a second simulation of the virtual environment; and

the force feedback signal from the host processor includes a positional offset, the positional offset being associated with a difference between the first virtual object and the second virtual object within the first simulation.

59. (Currently Amended) A method, comprising:

providing a manipulandum having at least one degree of freedom;
providing an actuator coupled to the manipulandum;
providing a sensor configured to detect a position of the manipulandum in the at least one degree of freedom, the position of the manipulandum being associated with a first virtual object within a virtual environment; and

providing a local processor coupled to the actuator and the sensor, the local

processor configured to receive from a host processor a force feedback signal generated by a force feedback driver software executing on the host processor, the force feedback signal based at least in part on a web page received from a remote processor, associated with a virtual interaction between the first virtual object and a second virtual object within the virtual environment, the second virtual object generated by a remote processor, the local processor configured to send an actuator a signal to the actuator based at least in part on the force feedback signal from the host processor, the virtual environment being defined by the host processor and the remote processor in communication with the host processor over a network.

60. (Currently Amended) The method of claim 59, wherein:

the local processor is configured to receive from the sensor a position signal associated with a position of a manipulandum, the position of the manipulandum being associated with a position of a the first virtual object within a the virtual environment executing on the host processor.

61. (Currently Amended) The method of claim 59, wherein:

the host processor is associated with a first simulation of the virtual environment; the remote processor is associated with a second simulation of the virtual environment; and the actuator signal sent to the actuator is configured to compensate within the first simulation for a delay between signals associated with the first virtual object and the signal associated with the second virtual object.

62. (Currently Amended) The method of claim 59, wherein:

~~the virtual environment is defined by the host processor and the remote processor,~~
the first processor implements ~~a defining~~ the first simulation of the virtual environment,
the second processor implements ~~defining~~ a second simulation of the virtual environment,
the first simulation substantially corresponding to the second simulation.

63. (Currently Amended) The method of claim 59, wherein:

the force feedback signal from the host processor includes a high-level command,
the local processor configured to implement a local force routine based on the high-level
command, the actuator signal sent to the actuator being based at least in part on the local
force routine.

64. (Currently Amended) The method of claim 59, wherein:

the host processor is associated with a first simulation of the virtual environment;
the remote processor is associated with a second simulation of the virtual
environment; and

the force feedback signal from the host processor includes a positional offset, the
positional offset being associated with a difference between the first virtual object and the
second virtual object within the first simulation.

65.-69. (Cancelled)

69. (Currently Amended) A system, comprising:

a computer video-gaming console having

a network interface;

a peripheral interface; and

a host processor coupled to the network interface and the peripheral interface,

the host processor configured to generate being associated with a first simulation of a virtual environment including a first virtual object,

the host processor configured to receive from the network interface a web page comprising embedded force feedback information signal associated with a second virtual object within the virtual environment, the second virtual object generated by a remote processor,

the host processor configured to execute a force feedback driver software, the force feedback software configured to interpret the embedded force feedback information, and

the host processor configured to send to the peripheral interface a force feedback signal configured to generate associated with a haptic a force feedback effect, the force feedback signal based at least in part on the interpreted haptic feedback information based on a virtual interaction between the first virtual object and the second virtual object; and

a controller having

a manipulandum having at least one degree of freedom;

an actuator coupled to the manipulandum;

a sensor configured to detect a position of the manipulandum in the at least one degree of freedom, the position of the manipulandum being associated with the

~~first virtual object within the virtual environment; and~~

a local processor coupled to the actuator, the sensor and the peripheral interface of the computer video gaming console, the local processor configured to receive the force feedback signal associated with the haptic feedback from the peripheral interface of the video gaming console, the local processor configured to send an actuator a signal to the actuator based at least in part on the on the force feedback signal associated with the haptic feedback,

the actuator configured to generate a force provide haptic feedback effect to the manipulandum based at least in part on the actuator signal from the local processor.

70. (New) A computer-readable medium comprising program code to cause a

processor to perform the steps of:

receive a web page comprising embedded force feedback information from a network interface;

generate a virtual environment based at least in part on the web page;

execute a force feedback driver software, the force feedback driver software configured to interpret the embedded force feedback information, and

transmit a force feedback signal configured to cause an actuator to generate a haptic feedback effect, the peripheral signal based at least in part on the haptic feedback information.

71. (New) The apparatus of claim 44, wherein the force feedback driver software

comprises a browser plug-in or a dynamically linked library.

72. (New) The apparatus of claim 44, wherein the web page is an HTML web page, and the embedded force feedback information is embedded in the HTML web page.

73. (New) The apparatus of claim 44, wherein the embedded force feedback information is included in a separate file.